Hummelink Modifications Mx-5 Miata VVT Conversion Wiring Instruction Manual

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Instruction Manual

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Mx-5 Miata VVT Conversion Wiring

Thanks for ordering a Hummel ink Modifications VVT wiring conversion.
This guide helps you with installing your kit.

Getting started

These wiring harnesses allow you to adapt your OEM NA6 wiring to the VVT engine sensors/injectors. A NA6 standalone ECU, Ashwell as a Hummel ink-Modifications or other coil on plug kit are needed for this conversion.
Before installing this wiring kit you want to swap the VVT coolant temperature sensor for the NA6 sensor. Two sensors can be found at the back of the NA6 head. The green sensor can be swapped directly with the VVT 3-pin IAT sensor. The small 'blade connector' sensor can be fitted on the heater hose side in the VVT head. The 1/8NPT blanking plug has the be removed in order to fit this sensor. This sensor is required for the dashboards temperature gauge to work.
Ideally these sensors have to be swapped before the engine is installed. This makes reaching them a lot easier.

Installation

Installing the wiring itself is very straightforward. The kit comes in 3 parts.

- The fuel injector harness
- Crank / cam signal adapter harness
- IAC/TPS adapters

Installing the wiring can be done on a engine stand, or after installing the engine.
The fuel injector harness is very similar to the original NA6 harness. It has the same 6-pin (or 8-pin on a 96/97) connector, which connects to the main harness. The 4 similar connectors are connected to the fuel injectors, these are either for the original Denso, Bosch EV1, EV6 or EV14 injectors. This allows you to use the right injector connector, without using adapters.
Longest end goes onto cylinder 1, shortest on cylinder 4.
This harness includes the coolant temperature connectors Ashwell, this is connected the same way as the NA6 wiring.
The VVT solenoid connector is build into this harness Ashwell. It connects at the VVT solenoid up front.
To get the solenoid to work, the extension of this harness has to be ran through the firewall to the ECU.
On a <95 model, this sub harness includes the cylinder 3 and 4 injection signal wire to get advantage of sequential injection. More about this in 'Setting up'

The NA6 uses a single CAS sensor for both cam and crank signal. The VVT engine has 2 separate sensors. The cam/crank adapter adapts these into the NA6 wiring. This adapter plugs in at the NA6 4-pin CAS connector, and adapts to the VVT cam sensor at the intake side, backside of the valve over, and the crank sensor up front. This connector can be found close to the power steering pump.

For the TPS and IAT it's just a matter of 2 simple adapters. The 3-pin is used for the throttle position sensor, the 2-pin for the idle control valve. Both can be found at the throttlebody

Setting up
To get this setup to work, a standalone ECU is required. Every brand of ECU requires it's own setup. This manual will give you a brief overview. This kit is mint to be used with a speed density system, by using a MAP and a IAT sensor.
The wiring which has been ran through the firewall has to be connected on the ECU's option port. Injector 3 and 4 (on a <95) have to be connected to a injector output. The VVT signal wire has to be connector on a low side output. Check your ECU's manual for which exact pin to use, Ashwell as the output of your ECU's option port.
A 12v source for the VVT solenoid has been integrated in the conversion harness. It includes a SB340
diode for the VVT output, which is required on various ECU's for VVT control.
The next info variates between any ECU, please check their manual for more details.
Cam and crank signal has to be set to the NB trigger patterns. These can usually be taken from a VVT baseman. A 36-2 triggerwheel is a good upgrade at this point Ashwell. In this case you would set the cam pattern to NB, and crank to 36- 2.
Some pep ECU's (for example Motorsport-electronics) require different resistors to be soldered into the board to get the right trigger readings.
Output for injector 3 and 4 have to be turned on. Make sure your injection settings are set to sequential injection. Injection angle settings can be copied from a VVT baseman for startup.
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VVT output has to be enabled on the designated pin on the options port. After the first startup VVT can be tested by using manual duty values, and can be properly tuned to closed loop control.
TPS and IAT doesn't have to be changed in output. The TPS needs a calibration, and the IAC needs proper adjustments after fueling and ignition has been tuned.
The coolant temperature sensor calibration can be taken from a NA6 Baseman.
For questions please email **info@hummelink-modifications.nl**

Documents / Resources

	Hummelink Modifications Mx-5 Miata VVT Conversion Wiring [pdf] Instruction Manual Mx-5 Miata VVT Conversion Wiring, Miata VVT Conversion Wiring, VVT Conversion Wiring, Conversion Wiring, Wiring

References

- ⊕ **modifications.nl**